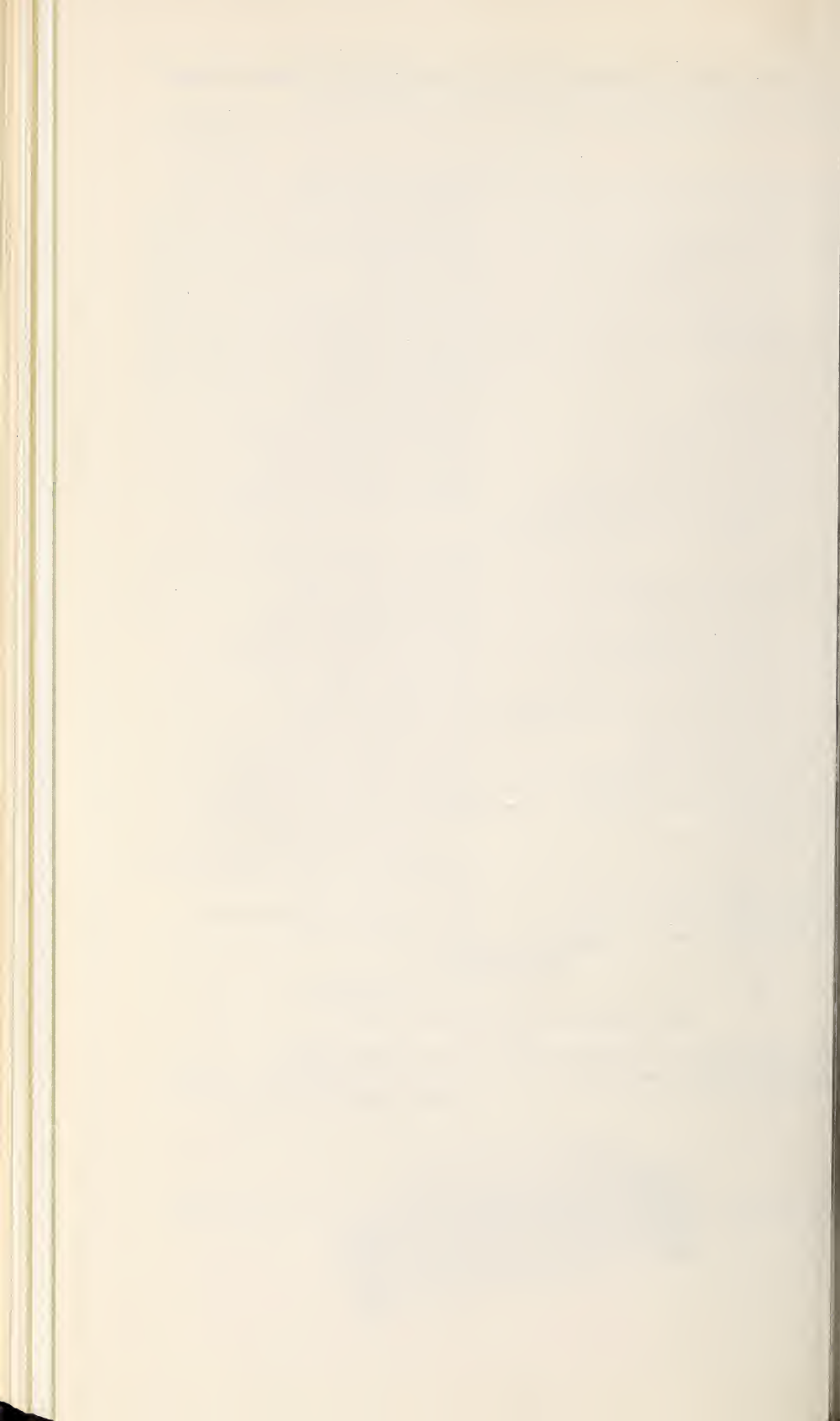


Historic, archived document

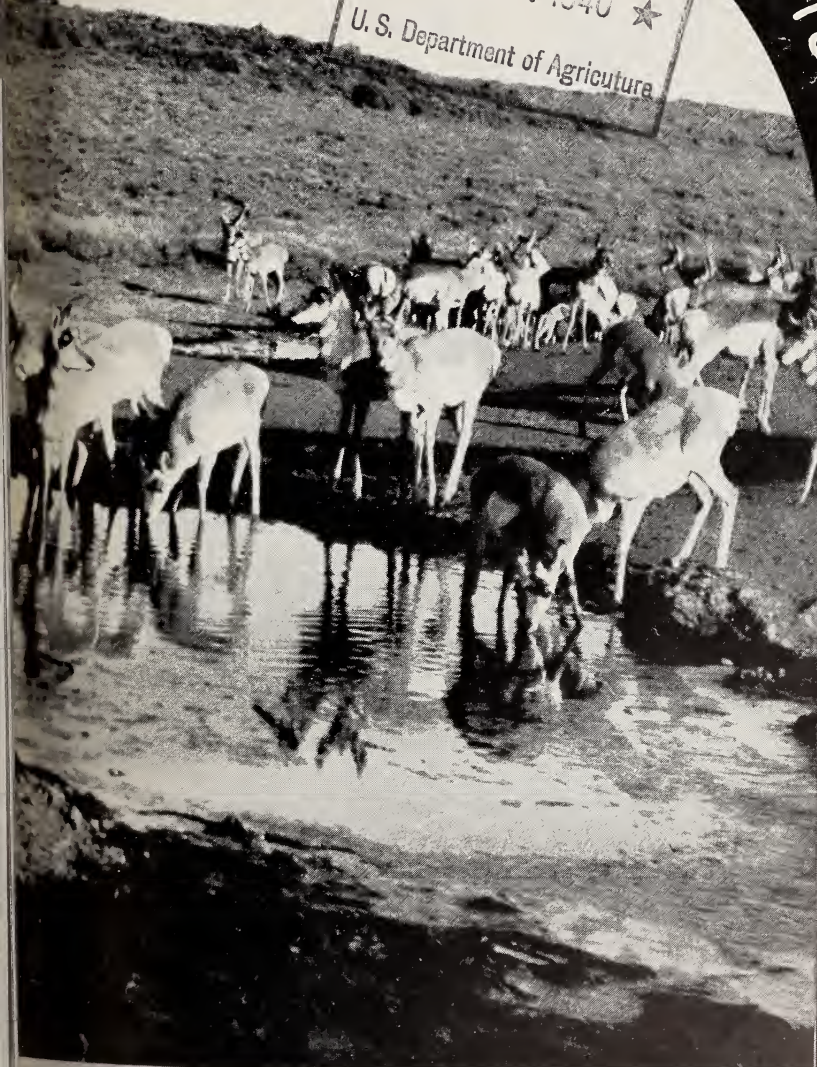
Do not assume content reflects current scientific knowledge, policies, or practices.



Hart Mountain Antelope Refuge

LIBRARY
RECEIVED
★ JAN 27 1940 ★
U. S. Department of Agriculture

355
Cop. 8



A NATIONAL WILDLIFE REFUGE



MISCELLANEOUS
PUBLICATION
No. 355

in Oregon

DURING the generations when comparatively little was done to conserve wildlife some species became extinct, and today many are dangerously near the brink of extermination. To protect this valuable resource of the Nation the Bureau of Biological Survey, frequently termed the "Federal Wildlife Service," conducts research on the distribution, migration, food habits, life histories, and habitat requirements of the various species and administers Federal laws for their conservation. In order to provide areas on which wildlife can live and breed in security, the Bureau also administers a system of national wildlife refuges.

Now there is Nation-wide interest in wildlife restoration. A program is being developed, chiefly by refuge establishment, to prevent, if possible, the extermination of any valuable species of wild birds and other animals and to increase their numbers to the greatest extent consistent with the land-use requirements of the human population. Most of the areas devoted to the restoration program are necessarily of types not adapted to profitable agricultural use.

Although the 250 national wildlife refuges now administered by the Biological Survey in the United States, Alaska, Hawaii, and Puerto Rico are sanctuaries for all forms of wildlife, each attempts to serve particularly one or a group of species. The Hart Mountain Antelope Refuge, for example, was developed primarily to preserve the species for which it is named, but it serves also as a haven for a variety of mammals, birds, and other forms of wildlife.

HART MOUNTAIN ANTELOPE REFUGE



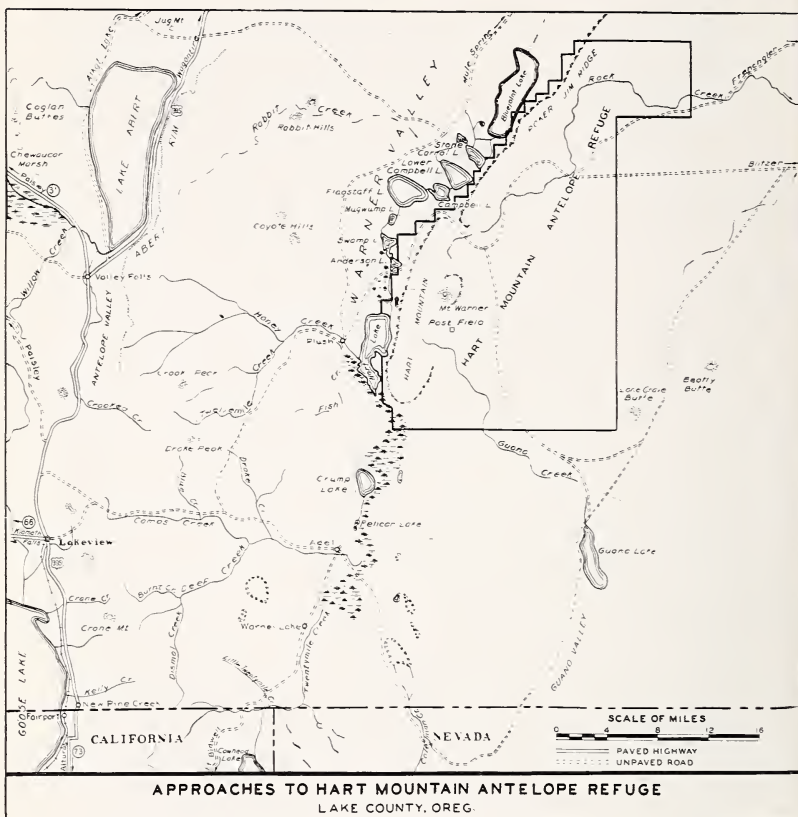
By STANLEY G. JEWETT
*Biologist, Division of Wildlife Refuges
Bureau of Biological Survey*

CONTENTS

	Page
History	3
Discovery and settlement of area	3
Development of refuge	5
Topography	6
Life Zones	8
Mammals of the refuge	11
Extinct subspecies	11
List of mammals	11
Birds of the refuge	12
List of birds	12
Tourist information	22
Other areas maintained primarily for big-game animals	23

UNITED STATES DEPARTMENT OF AGRICULTURE

Miscellaneous Publication No. 355



HISTORY

DISCOVERY AND SETTLEMENT OF AREA

WHILE THE Indians reigned supreme over that vast semiarid region between the Rocky Mountains and the Sierra Nevada and Cascade Range, now known as the Great Basin, a few venturesome trappers, ever on the hunt for beaver and other fine furs, wandered far and wide before the well-organized exploring parties left the path followed by Lewis and Clark on their history-making expedition of 1804-5. It is believed that some of these wandering trappers penetrated the Hart Mountain country of Oregon before the famous Fremont Expedition of 1843, the first recorded visit of white men.

Before Fremont started from the east coast, however, Colonel Abert prepared a map of the region from information obtained from a Mr. Mofras, attaché of the French legation in Mexico, showing the Warner Lakes and other natural features. This map showed a chain of four lakes called lacs des plants (lakes of plants) from information supposedly given by the Hudson's Bay Co. trappers who penetrated the country during the 1830's. At any rate, the lacs des plants were well named, as at present the chain of lakes in Warner Valley supports a rank growth of tules, pondweeds, sedges, and other aquatic vegetation that attracts great numbers of wild ducks, geese, and other water-loving birds.

The first published record describing this area is found in Fremont's Journals. During the 1840's Fremont explored the country and named Summer Lake on the west and Abert Lake to the north of what is now the Hart Mountain Antelope Refuge.

When gold was discovered on Canyon Creek, Grant County, Oreg., and in the Boise Basin of Idaho during the early sixties, there was a hasty exodus of miners from the California gold diggings northeastward. One of the trails led near, or possibly across, what is now the north end of the Hart Mountain Refuge. A regular stage line was established over this route but was soon abandoned, because marauding bandits and hostile Indians robbed and killed the agents and passengers and drove off the horses.





E51756

FIGURE 1.—“The Crater,” old stronghold of cattle rustlers.

Stories of vast grassy ranges, lakes and streams, wooded hills, and abounding game soon reached the ears of stockmen who wanted wider pasturage for their herds of cattle and bands of sheep. These ranchers started the real occupation of the country by white men and underwent untold hardships fighting Indians and rustlers and getting their outfits firmly established in so isolated a country (fig. 1).

After numerous massacres, in which whole families were killed and scalped, their buildings burned, and their flocks driven off, the Army, under command of General Crook, established a military post during the fall of 1866 on the eastern slope of Hart Mountain, in the western yellow pine (*ponderosa*) timber of a well-sheltered basin at an altitude of about 6,500 feet (fig. 2). This was known as Camp Warner.

The winter of 1866-67 was very severe, and the soldiers suffered greatly because of low temperatures and deep snows. During the coldest period, the entire company marched in the snow all one night to keep from freezing. One of the sergeants became lost and perished. After these experiences, General Crook decided to move the post to a place west of Hart Mountain at a much lower altitude. A site was chosen west of Warner Valley, near a large spring close to good timber, and on July 29, 1867, the old post was abandoned and the soldiers under command of a Captain Harris moved to the new location. A sawmill was established, houses erected, and the camp completed in a few months. General Crook waged a relentless war against the Indians, and in a few years the country became the peaceful, sparsely settled, stock-ranching community that it has remained to this day.

The spelling of Hart in the names of the mountain, lake, and canyon has been under discussion for some time. Geographers have spelled it

Hartz, Hart, or Heart, and many maps show Hart Mountain as Warner Mountain, probably naming it for old Fort Warner. According to Oliver Jacobs, father of a Biological Survey employee, who moved to the Hart Mountain area in 1883 and went to work for Henry & Johnnie Wilson, who were then operating the Hart Ranch, the Wilson brand on cattle and horses was a heart, thus giving the name of "Heart" to the ranch and other points in the vicinity. Subsequent usage, however, has established the shorter spelling.

DEVELOPMENT OF REFUGE

The Hart Mountain Antelope Refuge was established by Executive order of December 21, 1936, signed by President Roosevelt. The area comprises Hart Mountain proper and the surrounding desert range, including part of the Warner Lakes along the west boundary. It embraces an area of 215,516 acres, which was purchased from private owners or was unappropriated public domain.

The public lands within this refuge were originally set aside as a part of a 609,000-acre big-game range, established by Executive order of September 6, 1935, in connection with the organization of grazing districts under the Taylor Grazing Act of 1934. This order was revoked by the Executive orders that established the Hart Mountain Antelope Refuge and the Charles Sheldon Antelope Range, in Nevada. These two areas, together with the Charles Sheldon Antelope Refuge, established in Nevada in 1931, form a well-rounded-out project for the conservation of the antelope in northwestern Nevada and southeastern Oregon, as they include substantially the entire fawning grounds and summer and winter ranges of the animals of this species frequenting the region.

FIGURE 2.—East face of Hart Mountain, from "Post Field."

BS1754





B51444

FIGURE 3.—“The Rim of the World.”

TOPOGRAPHY

Hart Mountain is a massive volcanic ridge rising from the surrounding plain to an altitude of 8,020 feet above sea level (fig. 3 and fig. 4, *A*). The west side is precipitous, ascending abruptly from the floor of Warner Valley (fig. 5) in a series of rugged cliffs, steep slopes, and knifelike ridges (fig. 4, *B*). The face of the mountain is cut by several deep gorges (fig. 4, *C*). Hart Canyon, Potter Canyon, and DeGarmo Canyon, the most rugged of the three, extend from the valley floor to the top of the main ridge. The east side is less precipitous, rising gently from the level plateau that reaches eastward to the rim of Guano Valley. Both the north and south slopes drop off in a series of alternating declivities and moderately level benches.

The mountain is well watered by numerous fine springs. Rising near the summit, Rock Creek cuts a deep canyon in a northerly direction, emerging on the open plain just above the Lyon ranch, where it flows eastward and sinks in Catlow Valley. Fed throughout the year by many springs and by great fields of snow lasting well into the summer, Rock Creek is one of the most important streams on the refuge. Guano Creek, Stockade Creek, and Goat Creek, rising near the middle summit, and Deer Creek, rising from Adams Butte, are fed by permanent springs and traverse deep rock-walled canyons on the east slope. Guano Creek flows eastward in a meandering course across the plateau until it reaches Guano Valley, where it furnishes irrigation water for a large meadow. Deer Creek, Stockade Creek, and Goat Creek water the wild-grass meadows near the east base of the mountain before they sink into the desert. Numerous living springs and great snowbanks on the higher levels furnish an abundance of water for wildlife, and the precipitation is sufficient for the vegetative cover necessary for proper support of timber- and brush-loving birds and mammals.



BS1438; E51443; B5535M

FIGURE 4.—A, From the summit of Hart Mountain, a breath-taking view;
B, "The Rim," south of De Garmo Canyon; C, west face of Hart Mountain,
young sagebrush in foreground.



B51445

FIGURE 5.—Warner Valley lies 3,400 feet below.

LIFE ZONES

Hart Mountain has been likened to an oasis in a desert. Rising as it does of an arid plain to above 8,000 feet, well watered and clothed with a great variety of trees, shrubs, and lesser vegetation, it exemplifies the various life zones (fig. 6), from the hot semideserts of the Upper Sonoran to the cool Canadian Zone areas in its sheltered canyons (fig. 7). Along the west boundary between the steep slopes and the Warner Lakes, in the Upper Sonoran Zone, typical arid-plains conditions exist, producing among its plants, saltbush (*Atriplex canescens*), greasewood (*Sarcobatus vermiculatus*), sagebrush (*Artemisia tridentata*), rabbitbrush (*Chrysothamnus*), western juniper (*Juniperus occidentalis*), various species of brome-grasses, lupines, pentstemons, eriogonums, and saltgrasses.

Birds found in the Upper Sonoran Zone include the eared grebe, western grebe, white pelican, cinnamon teal, prairie falcon, eastern sparrow hawk, sage hen, avocet, Wilson's phalarope, Montana horned owl, Oregon poorwill, Arkansas kingbird, ash-throated flycatcher, Say's phoebe, gray flycatcher, lead-colored bushtit, Bullock's oriole, Nevada cowbird, common house finch, Oregon lark sparrow, and Modoc song sparrow.

Typical arid-plains mammals of the refuge are the Washington jack rabbit, Washington cottontail rabbit, prong-horned antelope, sagebrush chipmunk, white-tailed antelope squirrel, Gray ground squirrel, Gambel's deer mouse, Sonoran deer mouse, Peale's meadow mouse, Columbian five-toed kangaroo rat, Oregon pocket mouse, mountain coyote, California badger, Great Basin striped skunk, and the black-nosed bat.

At altitudes between 4,500 to 5,000 feet and 6,000 to 7,000 feet, depending on the slope exposure, about springs and in the cool canyons, is the Transition Zone, which is characterized by the western yellow, or ponderosa, pine. In this zone are several species of mountain-inhabiting birds, including Cooper's, western red-tailed, and Swainson's hawks, and the Montana horned owl, Oregon poorwill, Pacific nighthawk, red-shafted flicker, Modoc woodpecker, Wright's flycatcher, western wood pewee, western robin, Audubon's warbler, Macgillivray's warbler, western chipping sparrow, and the Warner Mountain fox sparrow.

The Hart Mountain area was well known to old-timers as a big-game paradise, especially because of the former herds of bighorn sheep, the

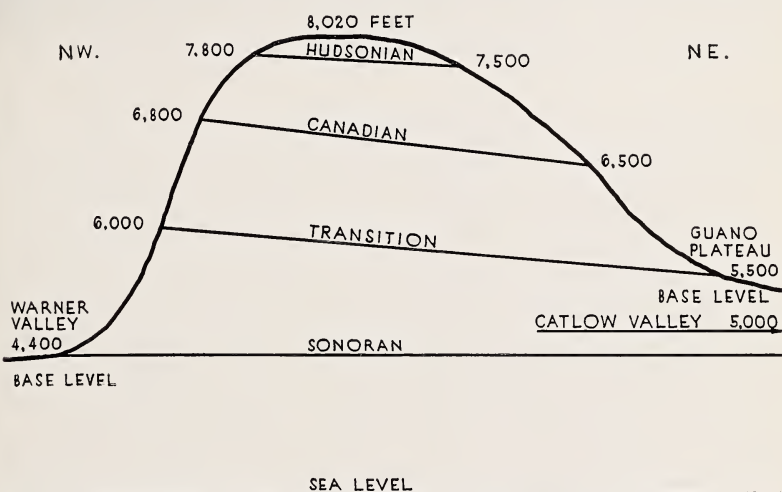


FIGURE 6.—Sketch of the life zones of Hart Mountain.

Rocky Mountain mule deer, and that unique plains animal, the prong-horned antelope. Of big game, only deer and antelopes now remain on the refuge area. During late summer the bands of the latter range from the east base of Hart Mountain to its summit. They graze on open flats, while the mule deer frequent the aspen groves and sheltered ravines. In the cool Canadian Zone are found the western white-tailed jack rabbit, Warner Mountain cony, Klamath chipmunk, golden-mantled ground squirrel, Oregon ground squirrel, and the Arizona weasel.

On the colder, higher ridges in the Canadian Zone, above 6,000 to 7,000 feet, snow lies well into the summer (fig. 8), forests of quaking aspen clothe the hillsides, and the canyons, fed by springs (fig. 9), have extensive thickets of willows mountain-mahogany, wild gooseberries, and



B51442

FIGURE 7.—Aspens clothe the hillsides.

mountain alder. The western goshawk, red-naped sapsucker, western olive-sided flycatcher, mountain bluebird, Calaveras warbler, Oregon white-crowned sparrow, and other high-mountain species of birds find here a summer home to their liking.

At the site of the old Army post of 1867, there is a considerable grove of western yellow, or ponderosa, pine in the Transition Zone at an altitude of about 6,600 feet. This is the only coniferous forest within an area of many miles, and it attracts an interesting variety of birds during the nesting season and periods of migration. The short-tailed chickadee, red-breasted nuthatch, Townsend's warbler, western tanager, western evening grosbeak, Cassin's purple finch, and Bendire's crossbill, are regular spring and summer visitors, and there are records of the Warner jay and Clark's nutcracker among these pines. Even the Alaska pine grosbeak, a rare visitor from the North, has been noted near the old fort during November.

Typical landscapes, mammals, and birds on the four life zones of Hart Mountain are shown in figures 10 to 21. Other species found on the refuge are shown in figure 22.

MAMMALS OF THE REFUGE

EXTINCT SUBSPECIES

No mention of the mammals of this interesting wildlife refuge would be complete without an account of those species that formerly inhabited the region but have now become extinct. As late as 1889, some of the older Indians recalled that in the days of their fathers the buffalo, or Oregon bison (*Bison bison oregonus*), ranged over some of the eastern Oregon plains. Evidence that this great beast once actually inhabited the refuge area was discovered during the summer of 1929, when a buffalo rib was picked up near old Camp Warner on Hart Mountain.

Another of the larger game mammals that have recently been exterminated is the lava-bed, or rimrock, bighorn (*Ovis canadensis californiana*). This fine sheep was common on Hart Mountain until comparatively recent years. About 1890, a survey party camping on the mountain shot many of the animals for their camp table. Old sheep horns and skulls are still found within the refuge.

LIST OF MAMMALS

Prong-horned antelope.....	<i>Antilocapra americana oregona.</i>
Rocky Mountain mule deer.....	<i>Odocoileus hemionus macrotis.</i>
Western white-tailed jack rabbit.....	<i>Lepus townsendii townsendii.</i>
Washington jack rabbit.....	<i>Lepus californicus wallawalla.</i>
Washington cottontail.....	<i>Sylvilagus nuttallii nuttallii.</i>
Idaho pygmy rabbit.....	<i>Brachylagus idahoensis.</i>
Warner Mountain cony.....	<i>Ochotona schisticeps taylora.</i>
Klamath chipmunk.....	<i>Eutamias amoenus amoenus.</i>
Sagebrush chipmunk.....	<i>Eutamias minimus pictus.</i>
Golden-mantled ground squirrel.....	<i>Citellus lateralis chrysodeirus.</i>
White-tailed antelope squirrel.....	<i>Citellus leucurus leucurus.</i>
Gray ground squirrel.....	<i>Citellus townsendii canus.</i>
Oregon ground squirrel.....	<i>Citellus beldingi oregonus.</i>
Pallid yellow-bellied marmot.....	<i>Marmota flaviventris avara.</i>
Western bushy-tailed wood rat.....	<i>Neotoma cinerea occidentalis.</i>
Oregon grasshopper mouse.....	<i>Onychomys leucogaster fuscogriseus.</i>
Gambel's deer mouse.....	<i>Peromyscus maniculatus gambelii.</i>
Sonoran deer mouse.....	<i>Peromyscus maniculatus sonoriensis.</i>
Desert harvest mouse.....	<i>Reithrodontomys megalotis megalotis.</i>
Peale's meadow mouse.....	<i>Microtus montanus montanus.</i>
Rocky Mountain meadow mouse.....	<i>Microtus mordax mordax.</i>
Pygmy mouse.....	<i>Lagurus pauperrimus.</i>
Yellow-haired porcupine.....	<i>Erethizon epixanthum epixanthum.</i>
Columbian five-toed kangaroo rat.....	<i>Dipodomys ordii columbianus.</i>
Oregon pocket mouse.....	<i>Perognathus parvus parvus.</i>
Dalles pocket gopher.....	<i>Thomomys quadratus quadratus.</i>
Rocky Mountain cougar.....	<i>Felis concolor hippolestes.</i>
Rocky Mountain bobcat.....	<i>Lynx rufus uinta.</i>
Mountain coyote.....	<i>Canis latrans lestes.</i>
Arizona weasel.....	<i>Mustela longicauda arizonensis.</i>



Western mink.....	<i>Mustela vison energumenos.</i>
Western otter.....	<i>Lutra canadensis pacifica.</i>
California badger.....	<i>Taxidea taxus neglecta.</i>
Great Basin striped skunk.....	<i>Mephitis occidentalis major.</i>
Great Basin spotted skunk.....	<i>Spilogale gracilis saxatilis.</i>
Black-nosed bat.....	<i>Myotis subulatus melanorhinus.</i>

BIRDS OF THE REFUGE

The great diversity of climatic conditions on Hart Mountain, combining desert, meadow, forest, and water areas, attracts a wide variety of birds. The lake district along the west border is one of the outstanding breeding areas for waterfowl in Oregon and attracts many other migrant species. The numerous groves of pine and aspen and well-wooded creek bottoms provide ideal nesting conditions, as well as food and shelter, for many species of song and insectivorous birds during migration.

LIST OF BIRDS

Eared grebe.....	<i>Colymbus nigricollis californicus.</i>
Western grebe.....	<i>Aechmophorus occidentalis.</i>
Pied-billed grebe.....	<i>Podilymbus podiceps podiceps.</i>
White pelican.....	<i>Pelecanus erythrorhynchos.</i>
Treganza's heron.....	<i>Ardea herodias treganzai.</i>
Common Canada goose.....	<i>Branta canadensis canadensis.</i>
Common mallard.....	<i>Anas platyrhynchos platyrhynchos.</i>
Gadwall.....	<i>Chaulelasmus streperus.</i>
American pintail.....	<i>Dafila acuta tsitzihoo.</i>
Green-winged teal.....	<i>Nettion carolinense.</i>
Cinnamon teal.....	<i>Querquedula cyanoptera.</i>
Northern turkey vulture.....	<i>Cathartes aura septentrionalis.</i>
Western goshawk.....	<i>Astur atricapillus striatulus.</i>
Sharp-shinned hawk.....	<i>Accipiter velox velox.</i>
Cooper's hawk.....	<i>Accipiter cooperi.</i>
Western red-tailed hawk.....	<i>Buteo jamaicensis.</i>
Swainson's hawk.....	<i>Buteo swainsoni.</i>
American rough-legged hawk.....	<i>Buteo lagopus s. johannis.</i>
Ferruginous roughleg.....	<i>Buteo regalis.</i>
Golden eagle.....	<i>Aquila chrysaetos canadensis.</i>
Marsh hawk.....	<i>Circus hudsonius.</i>
Prairie falcon.....	<i>Falco mexicanus.</i>
Eastern sparrow hawk.....	<i>Falco sparverius sparverius.</i>

FIGURE 8.—Snows lasting into summer feed the streams.

B51447

Sage hen	<i>Centrocercus urophasianus.</i>
Oregon valley quail	<i>Lophortyx californica orecta.</i>
Plumed quail	<i>Oreortyx picta picta.</i>
American coot	<i>Fulca americana americana.</i>
Killdeer	<i>Oxyechus vociferus vociferus.</i>
Spotted sandpiper	<i>Actitis macularia.</i>
Avocet	<i>Recurvirostra americana.</i>
Wilson's phalarope	<i>Steganopus tricolor.</i>
Western mourning dove	<i>Zenaidura macroura marginella.</i>
Flammulated screech owl	<i>Otus flammeolus flammeolus.</i>
Montana horned owl	<i>Bubo virginianus occidentalis.</i>
Western burrowing owl	<i>Speotyto cunicularia hypugaea.</i>
Long-eared owl	<i>Asio wilsonianus.</i>
Oregon poorwill	<i>Phalaenoptilus nuttalli nyctophilus.</i>
Pacific nighthawk	<i>Chordeiles minor hesperis.</i>
Black-chinned hummingbird	<i>Archilochus alexandri.</i>
Western belted kingfisher	<i>Megaceryle alcyon caurina.</i>
Red-shafted flicker	<i>Colaptes cafer collaris.</i>
Lewis's woodpecker	<i>Asyndesmus lewis.</i>
Red-naped sapsucker	<i>Sphyrapicus varius nuchalis.</i>
Modoc woodpecker	<i>Dryobates villosus orius.</i>
Batchelder's woodpecker	<i>Dryobates pubescens leucurus.</i>
Arkansas kingbird	<i>Tyrannus verticalis.</i>
Ash-throated flycatcher	<i>Myiarchus cinerascens cinerascens.</i>
Say's phoebe	<i>Sayornis saya saya.</i>

FIGURE 9.—Cold springs gush from the slopes.

B51455

Hammond's flycatcher.....	<i>Empidonax hammondi</i> .
Wright's flycatcher.....	<i>Empidonax wrighti</i> .
Gray flycatcher.....	<i>Empidonax griseus</i> .
Western wood pewee.....	<i>Myiochanes richardsoni richardsoni</i> .
Western olive-sided flycatcher.....	<i>Nuttallornis borealis borealis</i> .
Oregon horned lark.....	<i>Otocoris alpestris lamprochroa</i> .
Violet-green swallow.....	<i>Tachycineta thalassina lepida</i> .
Tree swallow.....	<i>Iridoprocne bicolor</i> .
Barn swallow.....	<i>Hirundo erythrogaster</i> .
Oregon cliff swallow.....	<i>Petrochelidon albifrons aprophata</i> .
Warner jay.....	<i>Cyanocitta stelleri syncolla</i> .
Long-tailed jay.....	<i>Aphelocoma californica immanis</i> .
American magpie.....	<i>Pica pica hudsonia</i> .
American raven.....	<i>Corvus corax sinuatus</i> .
Western crow.....	<i>Corvus brachyrhynchos hesperis</i> .
Clark's nutcracker.....	<i>Nucifraga columbiana</i> .
Short-tailed chickadee.....	<i>Parus gambeli abbreviatus</i> .
Lead-colored bushtit.....	<i>Psaltirparus minimus plumbeus</i> .
Red-breasted nuthatch.....	<i>Sitta canadensis</i> .
Black-eared nuthatch.....	<i>Sitta pygmaea melanotis</i> .
Western house wren.....	<i>Troglodytes aëdon parkmani</i> .
Western winter wren.....	<i>Nannus hiemalis pacificus</i> .
Common rock wren.....	<i>Salpinctes obsoletus obsoletus</i> .
Sage thrasher.....	<i>Oreoscoptes montanus</i> .
Western robin.....	<i>Turdus migratorius propinquus</i> .
Northern varied thrush.....	<i>Ixoreus naevius meruloides</i> .
Cascade hermit thrush.....	<i>Hylocichla guttata oromela</i> .
Willow thrush.....	<i>Hylocichla fuscescens salicicola</i> .
Mountain bluebird.....	<i>Sialia currucoides</i> .
Townsend's solitaire.....	<i>Myadestes townsendi</i> .
Western golden-crowned kinglet.....	<i>Regulus satrapa olivaceus</i> .
Western ruby-crowned kinglet.....	<i>Corthylio calendula cineraceus</i> .
Western pipit.....	<i>Anthus spinoletta pacificus</i> .
California shrike.....	<i>Lanius ludovicianus gambeli</i> .
Cassin's vireo.....	<i>Vireo solitarius cassini</i> .
Oregon warbling vireo.....	<i>Vireo gilvus leucopolius</i> .
Rocky Mountain orange-crowned warbler.....	<i>Vermivora celata orestera</i> .
Calaveras warbler.....	<i>Vermivora ruficapilla ridgwayi</i> .
Western yellow warbler.....	<i>Dendroica aestiva morcomi</i> .
Audubon's warbler.....	<i>Dendroica auduboni auduboni</i> .
Townsend's warbler.....	<i>Dendroica townsendi</i> .
Macgillivray's warbler.....	<i>Oporornis tolmiei</i> .
Western yellowthroat.....	<i>Geothlypis trichas occidentalis</i> .
Northern pileolated warbler.....	<i>Wilsonia pusilla pileolata</i> .
Western meadowlark.....	<i>Sturnella neglecta neglecta</i> .
Nevada redwing.....	<i>Agelaius phoeniceus nevadensis</i> .
Bullock's oriole.....	<i>Icterus bullocki bullocki</i> .
Western Brewer's blackbird.....	<i>Euphagus cyanocephalus alaiastus</i> .
Nevada cowbird.....	<i>Molothrus ater artemisiae</i> .

Western tanager.....	<i>Piranga ludoviciana.</i>
Black-headed grosbeak.....	<i>Hedymeles melanocephalus melanocephalus.</i>
Lazuli bunting.....	<i>Passerina amoena.</i>
Western evening grosbeak.....	<i>Hesperiphona vespertina brooksi.</i>
Cassin's purple finch.....	<i>Carpodacus cassinii.</i>
Common house finch.....	<i>Carpodacus mexicanus frontalis.</i>
Alaska pine grosbeak.....	<i>Pinicola enucleator alascensis.</i>
Northern pine siskin.....	<i>Spinus pinus pinus.</i>
Pale goldfinch.....	<i>Spinus tristis pallidus.</i>
Bendire's crossbill.....	<i>Loxia curvirostra bendirei.</i>
Oregon green-tailed towhee.....	<i>Oberholseria chlorura zapolia.</i>
Nevada towhee.....	<i>Pipilo maculatus curtatus.</i>
Nevada Savannah sparrow.....	<i>Passerculus sandwichensis nevadensis.</i>
Great Basin vesper sparrow.....	<i>Pooecetes gramineus definitus.</i>
Oregon lark sparrow.....	<i>Chondestes grammacus actitus.</i>
Northern sage sparrow.....	<i>Amphispiza nevadensis nevadensis.</i>
Shufeldt's junco.....	<i>Junco oreganus shufeldti.</i>
Western chipping sparrow.....	<i>Spizella passerina arizonae.</i>
Brewer's sparrow.....	<i>Spizella breweri breweri.</i>
Oregon white-crowned sparrow.....	<i>Zonotrichia leucophrys oriantha.</i>
Alberta fox sparrow.....	<i>Passerella iliaca altivagans.</i>
Warner Mountains fox sparrow.....	<i>Passerella iliaca fulva.</i>
Modoc song sparrow.....	<i>Melospiza melodia fisherella.</i>



FIGURE 10 (above).—Typical landscape in the Hudsonian Zone; a view of the main ridge of Hart Mountain.

FIGURE 11 (below).—Typical landscape in the Canadian Zone; aspen groves on east slope of Hart Mountain.





49

FIGURE 12 (above).—Typical landscape in the Transition Zone; aspen and mountain-mahogany in left foreground and center.

FIGURE 13 (below).—Typical landscape in the Upper Sonoran Zone in foreground, Hart Mountain in background.

33M





B5

FIGURE 14 (above).—Typical mammal of the Hudsonian Zone, mantled ground squirrel.

FIGURE 15 (below).—Typical mammal of the Canadian Zone, Warner Mountain cony.

B743



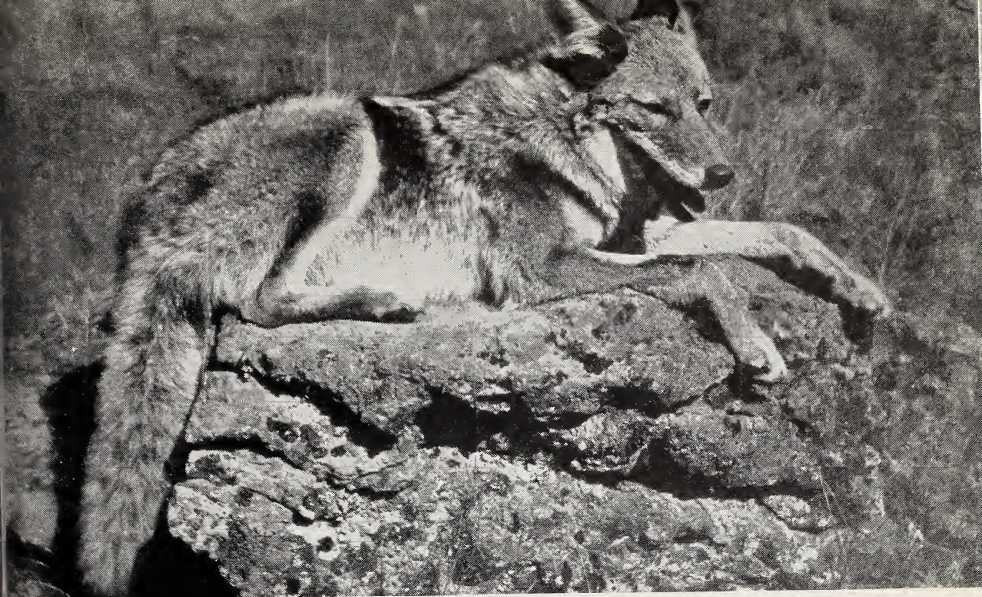


FIGURE 16 (above).—Typical mammal
of the Transition Zone, coyote.

FIGURE 17 (below).—Typical mammal
of the Upper Sonoran Zone, Washing-
ton cottontail rabbit.





B743

FIGURE 18 (above).—Typical bird of the
Hudsonian Zone, white-crowned spar-
row

FIGURE 19 (below).—Typical bird of the
Canadian Zone, mountain bluebird.

B36924





FIGURE 20 (above).—Typical bird of the Transition Zone, Cooper's hawk.

FIGURE 21 (below).—Typical bird of the Upper Sonoran Zone, western grebe (carries Biological Survey band).



TOURIST INFORMATION

(See map, p. 2.)

The best time to visit Hart Mountain is May 15 to November 1. The high, dry air of central Oregon during this period varies from near freezing to 90°, or even 100° F., during midsummer. The days are usually clear and bright, but at night the temperature often dips to the frost point. Visitors should bring sufficient warm clothing to be comfortable during cloudy days or while driving at night.

The prong-horned antelope (fig. 23) is the greatest attraction to visitors. During the fawning season in May, while the desert pools are still full and water is available over a wide area, the mother antelope with her single or twin fawns is an everyday sight, while later in the summer, as water becomes scarcer through evaporation, great mixed bands of bucks, does, and fawns graze contentedly on the open flats or drink at the water holes en masse. The visitor can thus see hundreds of antelopes daily from an automobile, while deer, sage hens, and other wildlife abound on the range for those who visit this great outdoor zoological garden to see and study.

From California, tourists should leave the Pacific Highway (U S 99) at Weed, drive over U S 97 to Klamath Falls, Oreg., and thence east to Lakeview over State Highway 66.

Visitors from western Washington or western Oregon should drive south on the Pacific Highway (U S 99) to Klamath Falls Junction, thence east to Klamath Falls and Lakeview over State Highway 66.

From Portland, Oreg., other routes may be taken: (1) East over the beautiful Columbia River Highway (U S 30) to Biggs, Oreg., thence on U S 97 to Lapine; (2) over the Wapinta cut-off on State Highway 50, which ends on U S 97 about 6 miles below Criterion, then on U S 97 to Lapine; from Lapine, take State Highway 31 to Valley Falls, then U S 395 to Lakeview.

From the north, a good road (State Highway 54) leads from Ontario, Oreg., to Burns; thence, south to Lakeview over the Yellowstone Trail (U S 395).

Another route through parts of the Blue Mountains runs from Pendleton, Oreg., over U S 395 direct to Lakeview. The tourist may stop over at Burns and visit the great Malheur Migratory Bird Refuge just 35 miles south.

From Lakeview a good dirt road leads east over the Warner Mountains to Warner Lakes and into the Hart Mountain Refuge.

Persons wishing to visit the refuge should communicate with Superintendent Jean F. Branson, 252 Post Office Building, Lakeview, Oreg.

OTHER AREAS MAINTAINED PRIMARILY FOR BIG-GAME ANIMALS

Hart Mountain Antelope Refuge is 1 of 13 game preserves, refuges, or ranges (described in Biological Survey mimeographed leaflet BS-95) maintained by the Biological Survey primarily for North American big-game animals but on which all wild animals and birds are protected, except predators and rodents when it becomes necessary to control their injurious activities. The other 12 areas, the first 4 of which are enclosed with big-game fences, are as follows:

National Bison Range, Montana.—The principal species on this area are bison, elk, bighorns (mountain sheep), mule deer (sometimes called black-tailed deer), and white-tailed deer.

Wichita Mountains Wildlife Refuge, Oklahoma.—On this refuge are herds of bison, elk, Texas longhorns, and numerous white-tailed deer. This refuge is dedicated especially to research on wildlife.

Fort Niobrara Game Preserve, Nebraska.—Bison and elk, and a few white-tailed deer, mule deer, and Texas longhorns are on this preserve (described in Biological Survey mimeographed leaflet BS-109).

Sullys Hill Game Preserve, North Dakota.—On this preserve are maintained bison, elk, and white-tailed deer (described in Biological Survey mimeographed leaflet BS-61).

Elk Refuge, Wyoming.—A winter feeding ground for elk of the southern Yellowstone herd.

Charles Sheldon Antelope Refuge, Nevada.—Besides the antelope, this refuge supports numerous mule deer.

Charles Sheldon Antelope Range, Nevada.—Although chiefly an antelope range, many mule deer also are found here.

Desert Game Range, Nevada.—The principal species on this range is Nelson's, or the desert, bighorn. Other species are mule deer and elk.

Fort Peck Game Range, Montana.—White-tailed and mule deer and some antelopes frequent this area.

Kofa and Cabeza Prieta Game Ranges, Arizona.—The Gaillard bighorn is the principal species on these ranges; others include antelope, peccary, mule deer, and Gambel's quail.

Nunivak Island Wildlife Refuge, Alaska.—On this refuge are musk oxen, caribous, and reindeer; also foxes and other fur-bearing animals.

On the Charles Sheldon Antelope Refuge and the Charles Sheldon Antelope Range in Nevada, and the Elk Refuge in Wyoming, as well as on the Hart Mountain Antelope Refuge, as herein indicated, is also found the sage grouse, or sage hen, a species that has been fast disappearing. The protection afforded this species on these refuges should result in its increase and restoration.

Big-game animals are afforded protection also on various areas administered by the Biological Survey primarily as bird refuges. White-tailed deer are found on the White River Refuge, Ark., on Okefenokee, Black-beard Island, and Piedmont, Ga., Delta, La., Moosehorn, Maine, Seney.

Mich., Tamarac, Minn., Lower Souris, N. Dak., Cape Romain and Carolina Sandhills, S. C., Aransas, Tex., and Little Pend Oreille, Wash.; and also on 25 other bird refuges in 11 States—Florida, Kentucky, Louisiana, Minnesota, Montana, New York, North Carolina, South Carolina, North Dakota, South Dakota, and Wisconsin. Mule deer are protected on Malheur; and Columbian black-tailed deer, on Upper Klamath, Oreg. Antelope are found on Camas, Idaho, Greedmans Coulee and Lake Mason, Mont., Malheur, Oreg., Pathfinder, Wyo., and a few on 16 other refuges in California, Montana, Nebraska, New Mexico, and Wyoming. About 100 bighorns are on the Boulder Canyon Refuge, Ariz. and Nev. Elk are occasionally seen on several bird refuges in the West; as are moose, on the Elk Refuge, Wyo., and the Moosehorn, Maine. Black bears are plentiful on the Okefenokee, and occur in limited numbers on a few other bird refuges; two cinnamon bears have been seen on the Upper Klamath Refuge, Oreg.; brown bears occur on Unimak Island, of the Aleutian Reservation, Alaska; and black bears on other Alaskan refuges.

Wildlife and Federal property on the big-game preserves, refuges, and ranges are protected by Federal laws and regulations. Copies of these may be obtained from the Bureau of Biological Survey, Washington, D. C.



B25647; B5775M; B50835

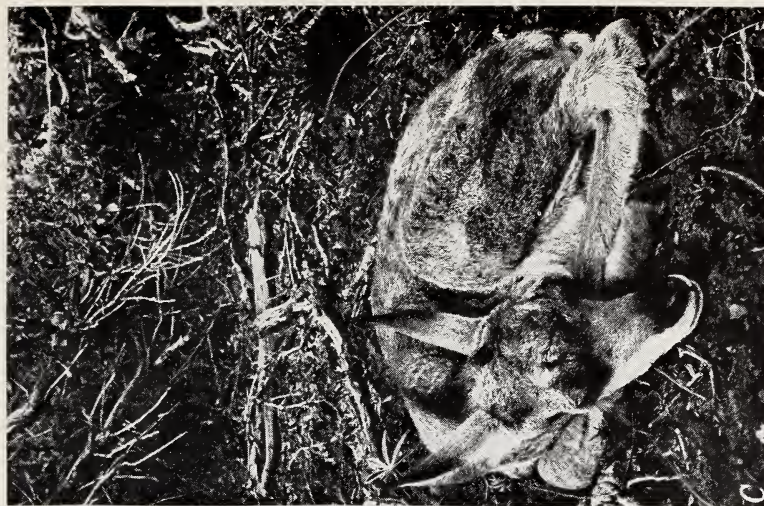
FIGURE 22.—*A*, Young horned owl; *B*, prong-horned antelope; *C*, common Canada goose.



B46920



B7435M



B.4433M

FIGURE 23.—A, Close-up of antelope; B, Nevada antelope; C, antelope fawn, 1-day old.





2/27